REMARKS

Status of the claims

Applicants acknowledge that claims 4, 7, 10, and 16 are allowed.

II. Rejection under 35 U.S.C. 112, first paragraph

Claims 1-3, 5-6, 8, 9, 11-12, 14-15, and 17-18 are rejected under 35 U.S.C. § 112, first paragraph. Applicants respectfully traverse.

Applicants respectfully assert that the Examiner's rejection of the claims is predicated on an erroneous construction. The claims do not read on just any DNA molecule but on DNA molecules capable of hybridizing to a specific probe (SEQ ID NOs: 3, 4, 6, 7, 8, or 17) and exhibiting a specific function (*i.e.* glyphosate oxidoreductase). The hybridization to a specified probe is a characteristic of the claimed isolated DNA molecules, rather than a required means of isolating that DNA molecule. The hybridization limitation is an additional limitation on the requirement that the DNA encodes a glyphosate oxidoreductase enzyme.

Although it is respectfully submitted one of skill in the art would be able to utilize specific probes to clone other glyphosate oxidoreductase genes as reported in the specification (see e.g., column 19, lines 46-65), it is further submitted that the specification discloses several methods of isolating DNA molecules coding for glyphosate oxidoreductase enzymes and that such methods would also allow one of skill in the art to clone a number of glyphosate oxidoreductase enzymes. For example, one of those methods is PCR. The present disclosure exemplifies successful exploitations of this approach to clone glyphosate oxidoreductase genes from other sources (*see* specification column 20, line 25 through column 22, line 30). Those DNA molecules isolated by PCR can then be screened by hybridization, *e.g.*, with SEQ ID NO:3,

and by determining their glyphosate oxidoreductase capabilities, as further exemplified in the specification at column 6, line 10 through column 8, line 54. It is respectfully submitted that it would not require undue experimentation for one of ordinary skill in the art to determine the proper hybridization conditions to, in effect, perform a Southern blot using a known probe to verify the hybridization of an isolated clone[1]. The Examiner's statement at page 5 of the office action, that "Applicants' reference to PCR conditions for hybridization conditions is also highly misplaced as PCR experiments and hybridization experiments are two separate experiments and conditions for one cannot be simply applied to the other" is respectfully submitted to be based on a misperception that the obtention of genes encoding glyphosate oxidoreductase must result from a hybridization-based approach. Applicants respectfully submit that the instant application, which reports the cloning of a number of glyphosate oxidoreductase genes using several approaches is fully enabling for the claims sought.

The Examiner asserts that, absent a statement of specific hybridization conditions, only DNA sequences with very high homology will hybridize under highly stringent conditions and exhibit the enzymatic activity of interest. Furthermore, the Examiner argues that multiple substitutions would destroy the original enzymatic activity encoded by the DNA sequence and therefore a DNA sequence with low homology will likely not have the desired activity. Applicants respectfully traverse.

The claims are directed to DNA sequences that fulfill two specific requirements: being capable of hybridizing to one of the disclosed DNA sequences and encoding a glyphosate

[1]Maniatis *et al.* 1982, a widely used reference, provides general methodology for techniques in molecular biology (such as Southern blot), which could be used by those of skill in the art and were widely available at the time. The Maniatis reference is cited in column 8, line 61 and column 10, line14 of the patent being examined for reissue.

oxidoreductase enzyme. Both those requirements have to be met in order for the isolated DNA molecule to qualify under the scope of the claims. As stated in column 19, line 66 through column 20, line 24, a gene can be isolated through a method involving selection for glyphosate tolerance in a cosmid library (as exemplified in the specification at column 8, line 55 *et seq.*) and its identity then confirmed by both a positive hybridization signal with the LBAA gene and the determination of its glyphosate oxidoreductase activity. If the enzymatic activity were destroyed through mutation or the like, the gene should be eliminated by the selection process.

Furthermore, the assay used to determine the glyphosate oxidoreductase function of the isolated DNA molecules is extensively described in the Patent being reissued from column 6, line 10 through column 8, line 54. Using this method, number of clones can be screened for function and the specific knowledge of their structure-function relationship is not relevant for their isolation.

It so appears that the specification fully enables the isolation of new genes coding for glyphosate oxidoreductase enzymes by a number of means, and also enables the functional characterization of those new genes through enzymatic assays. Applicants respectfully request that the rejection under 35 U.S.C. § 112, first paragraph be withdrawn.

III. Double patenting rejection

Claims 13-15 are rejected under the doctrine of double-patenting as being unpatentable over claim13 of U. S. Patent No. 5,463,175.

Applicants respectfully submit that such a terminal disclaimer has already been provided in the patent being reissued and, therefore, it is inappropriate to request the filing of yet another terminal disclaimer at this time.

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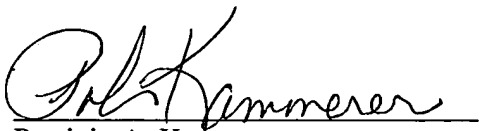
The Examiner is invited to contact Janelle Waack at (713) 787-1686 or the undersigned attorney with any questions or comments relating to this patent application.

Should any other fee be required for any reason in connection with this Response, the Commissioner is authorized to deduct said fees from Howrey Simon Arnold & White Deposit Account No. 01-2508/11914.0140.NPUS00/WAA.

Respectfully submitted,



Patricia A. Kammerer
Reg. No. 29,775
Attorney for the Assignee
MONSANTO TECHNOLOGY, LLC.

HOWREY SIMON ARNOLD & WHITE
750 Bering Drive
Houston, TX 77057-2198
(713) 787-1400

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